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This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on 07-28-95 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 03 month(s), ——— days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice of Draftsman's Patent Drawing Review, PTO-948.
3. ☒ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____.

Part II SUMMARY OF ACTION

1. ☒ Claims 1 - 48 are pending in the application.

   Of the above, claims _____ are withdrawn from consideration.

2. ☐ Claims _____ have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 1 - 48 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☒ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____. has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____ ; filed on _____.

13. ☐ Since this application apppears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

Part III DETAILED ACTION

1. Acknowledgment is made of applicant's status inquiry filed on 12/11/95.

2. For convenience of prosecution, it would be greatly appreciated if Applicants, in the next response, submit a complete set of the pending claims so that all the claims being prosecuted will be easily viewed together.

Specification

3. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. § 112, first paragraph, as the specification, as originally filed, does not provide support for the invention as is now claimed.

As to claim 23, the original specification fails to disclose the claimed limitation that a residue signal produced from signals transmitted by the **first** base station is processed to determine a strength of a signal transmitted by the **second** station, as recited at lines 6-12.

As to claims 28 and 40, the original specification fails to disclose the claimed limitation "paging messages".

As to claims 35 and 46, the original specification fails to disclose the handover command which identifies at least **one other base station** on which said signal strength measurements are to be performed.

As to claim 36, the original specification fails to disclose the claimed limitations "a composite signal **comprised of pilot signals and traffic signals** from said base stations", as recited at lines 5-6, and "demodulating at said mobile station **said pilot signals and said traffic signals** transmitted by said base stations in an order of strongest to weakest signal strength **based on a historical signal strength**", as recited at lines 7-9.

As to claim 48, the original specification fails to disclose the claimed limitation "the pilot signals transmitted by each base station is **stronger** than the traffic signals transmitted by the same base station".

Claim Rejections - 35 USC § 112

4. Claims 23-48 are rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 14 and 15 are rejected under 35 U.S.C. § 102(e) as being anticipated by Blakeney, II et al (hereinafter simply referred to as Blakeney).

As to claim 14, see Blakeney, figure 1, numerals 12, 14, 16 for "first and second base stations"; numeral 18 for "remote unit". See figure 2, numeral 34 for "signal processing means"; numeral 34 for "analog to digital conversion means" (also see column 12, lines 61-63); numerals 46, 40, 42 for "CDMA processing means"; numerals 50, 52 for "encoder means"; numerals 38, 36, 30 for "CDMA transmitting means".

As to claim 15, with respect to an "access code", see Blakeney, column 26, lines 59-66, with respect to "base station code", and "traffic channel code", see Blakeney, column 19, lines 24-42.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

8. Claims 2, 7-9, 16-22 are rejected under 35 U.S.C. § 103 as being unpatentable over Blakeney in view of Dent (U.S. Patent No. 5,151,919).

As to claim 7, Blakeney discloses a cellular telephone system comprising steps of "decoding at the mobile station" (see column 13, lines 35-65; column 27, lines 11-47), "transmitting a signal from said mobile station the signal strength indications" (see

column 4, lines 1-14; column 27, lines 15-39), "receiving the signal strength indications at one of the base stations" (see column 4, lines 5-10), "processing the indicated signal strengths at the network controller" (see column 14, lines 10-14).

Blakeney fails to disclose that each of the transmitted signals is encoded with a different "scrambling code". In an analogous art, Dent teaches a CDMA system in which each of the transmitted signal is encoded with a unique scrambling code so that it will completely eliminate cross talk and make it very difficult and costly to eavesdrop or track calls (see column 2, lines 12-21, 35-39). Therefore, it would have been obvious to one of ordinary skill in the art to provide the teaching of "unique scrambling code" to Blakeney, in order to completely eliminate cross talk and to make it very difficult and costly to eavesdrop or track calls (as suggested by Dent).

As to claim 2, the rejection to claim 7 above is hereby incorporated as reference. With respect to the claimed limitation that the second base station receives the transfer indication from the first base station (instead, the above transfer indication is generated from the "network controller" in Blakeney's reference as recited on column 3, lines 62-68). However, those skilled in the art would have appreciated that in Blakeney's reference the second base station could receive the transfer indication from either the first base station or network controller. In addition, if the

transfer indication is transmitted from the base station instead of network controller, less work is going to be done at the network controller. Therefore, it would have been obvious to one of ordinary skill in the art to modify Blakeney reference as recited in the claim, because it would reduce the cost of implementing the network controller. With respect to the claimed limitation that the first and second base stations employ different carrier frequencies, it would be appreciated by those skilled in the art that if a minimum frequency bandwidth or a non-interrupted handoff is preferred in Blakeney's invention, then the first and second base stations should use the same carrier frequency. Otherwise, if a minimum frequency interference is preferred or one of the two base stations can not provide signals for the mobile station on the frequency employed by another base station, then the different carrier frequencies should be incorporated. Therefore, it would have been obvious to one of ordinary skill to modify Blakeney's reference as recited in the claim, because the frequency interference would be greatly reduced.

As to claim 8, with respect to an "access code", see Blakeney, column 26, lines 59-66.

As to claim 9, with respect to "base station code", and "traffic channel code", see Blakeney, column 19, lines 24-42.

As to claims 16-17, since Dent teaches encoding an unique scrambling code for each transmitted signal, Blakeney as modified

by Dent would read on the claimed limitation "the first and second scrambling codes have different numeric values".

As to claim 18, Blakeney discloses a **soft** handoff apparatus and method comprising limitations of "first and second base stations" (see base stations A and B of figures 8-9); "mobile station" 18 (figure 1); "network controller" 10 (figure 1); "first code and second code" (see column 6, lines 17-20 for different code phase offsets, see also column 19, lines 25-35); "demodulated first and second signals" (see blocks 42-40 of figure 2, column 13, lines 35-65; column 27, lines 11-12); "signal processing means" 46 (figure 2); "CDMA processing means" 46 (figure 2), "first and traffic signals" (see column lines 23-35), "control message" (see column 19 for hand-off direction message, in-traffic message).

Blakeney fails to disclose that the second base station receives the transfer indication from the first base station (instead, the above transfer indication is generated from the "network controller" in Blakeney's reference as recited on column 3, lines 62-68). However, those skilled in the art would have appreciated that in Blakeney's reference the second base station could receive the transfer indication from either the first base station or network controller. In addition, if the transfer indication is transmitted from the base station instead of network controller, less work is going to be done at the network controller. Therefore, it would have been obvious to one of

ordinary skill in the art to modify Blakeney reference as recited in the claim, because it would reduce the cost of implementing the network controller.

Blakeney further fails to disclose demodulating, in an order of strongest to weakest signal strength, the first and second signals transmitted from the first and second base stations. In an analogous art, Dent teaches a CDMA system employing CDMA subtractive demodulation in which the received composite signal is decoded in the order of strongest to weakest signal strength so that the signal decoding can be carried out efficiently and accurately (see abstract, column 2, lines 50-58). Therefore, it would have been obvious to one of ordinary skill in the art to provide the teaching of "CDMA subtractive demodulation" in Dent to Blakeney, in order to carry out the signal decoding efficiently and accurately (as suggested by Dent).

As to claim 19, since Dent utilizes "subtractive demodulation" Blakeney as modified by Dent would read on the claimed subtracting step.

As to claims 20-22, the modified Blakeney fails to disclose the power adjustment at the base stations and mobile station as claimed. However, the Examiner takes Official Notice that such a power adjustment is known in the art so that disturbing ongoing traffic will be avoided (as described by the present specification, page 10, lines 1-7). Therefore, it would have been obvious to one

of ordinary skill in the art to provide the conventional power adjustment to the modified Blakeney, in order to avoid disturbing ongoing traffic.

9. Claims 1, 3-6, 10-13 are rejected under 35 U.S.C. § 103 as being unpatentable over Blakeney.

As to claims 1, 10, Blakeney discloses a **soft** handoff apparatus and method comprising limitations of "first and second base stations" (see base stations A and B of figures 8-9); "mobile station" 18 (figure 1); "network controller" 10 (figure 1); "first frequency" (see column 6, lines 6-8), "first code and second code" (see column 6, lines 17-20 for different code phase offsets, see also column 19, lines 25-35); "demodulated first and second signals" (see blocks 42-40 of figure 2, column 13, lines 35-65; column 27, lines 11-12); "signal processing means" 46 (figure 2); "CDMA processing means" 46 (figure 2), "first and traffic signals" (see column lines 23-35), "control message" (see column 19 for hand-off direction message, in-traffic message).

Blakeney fails to disclose that the second base station receives the transfer indication from the first base station (instead, the above transfer indication is generated from the "network controller" in Blakeney's reference as recited on column 3, lines 62-68). However, those skilled in the art would have appreciated that in Blakeney's reference the second base station

could receive the transfer indication from either the first base station or network controller. In addition, if the transfer indication is transmitted from the base station instead of network controller, less work is going to be done at the network controller. Therefore, it would have been obvious to one of ordinary skill in the art to modify Blakeney reference as recited in the claim, because it would reduce the cost of implementing the network controller.

As to claim 3, with respect a "first base station code", a "first access code", a "second base station code" and a "second access code", see Blakeney, column 6, lines 23-27; column 19, lines 24-27.

As to claims 11-13, with respect to a "traffic channel code", see Blakeney, column 19, lines 3-10, 31-35, 60-64.

As to claims 4-6, Blakeney discloses limitations of "error correcting the demodulation signals" (see column 13, lines 62-65, "diversity combination" (see column 13, lines 54-65).

Response to Amendment

10. Applicant's arguments with respect to claims 1-48 have been considered but are deemed to be moot in view of the new grounds of rejection.

Since claims 2 and 7 are applied with the new grounds of rejection in this Office action, the Examiner is not going to

respond to Applicants' argument regarding the claimed limitation "different scrambling code" in claims 2 and 7.

In response to Applicants' argument regarding claim 14 that Blakeney does not disclose decoding the numerical values using the first and second codes to obtain demodulated data signals received from the first and second base stations, which advantageous feature allows for selection combining on a symbol-by-symbol basis, the Examiner disagrees with Applicants' position for the following reasons:

(i) Blakeney does disclose decoding the numerical values using the first and second codes to obtain demodulated data signals received from the first and second base stations. Applicants' attention is directed to column 12, line 61 to column 13, line 21. In this case, the claimed "numerical values" broadly read on the digitized signal output from the A/D converter included in the receiver 34 (see column 12, lines 61-68), and the claimed "a first and second code" read on the PN sequences in the receivers 40 and 42 (see column 13, lines 1-21),

(ii) the limitations on which the Applicant relies (i.e., selection combining on a **symbol-by-symbol basis**) are not stated in the claims. Therefore, it is irrelevant whether the reference includes those features or not.

In response to Applicants' argument regarding claim 1, the Examiner's discussion of claim 14 as set forth above is hereby incorporated as reference.

In response to Applicants' argument regarding claim 5 that Blakeney fails to disclose selecting symbols from the first and second demodulated signals, the Examiner disagrees with Applicants' position. Although Blakeney uses maximal ratio combining, it is clear that any of the combined symbols must come from the set of symbols of the first and second demodulated signals. Therefore, with the broadest reasonable interpretation, the claimed limitation "selecting symbols from the first and second demodulated signals" of claim 5 will read on Blakeney.

In response to Applicants' argument regarding claim 6 that Blakeney fails to disclose combining symbols from the first and second demodulated signals, Applicants' attention is directed to column 11, lines 12-21, wherein the combining of symbols are disclosed. It should be noted that the demodulated signals in this case are the signals output from both of the receivers 40 and 42, not the signal output from the decoder 48 (i.e. they are called decoded signals).

In response to Applicants' argument regarding claim 10, the Examiner's discussion of claim 14 as set forth above is hereby incorporated as reference.

For the foregoing reasons, the Examiner contends that the above rejections to the claims are proper.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen Vo, whose telephone number is (703) 308-6728. The Examiner can normally be reached on Tuesday-Friday from 8:00 AM - 5:30 PM. The examiner can also be reached on alternate Monday.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

Nguyen Vo
January 18, 1996

Reinhard J. Eisenzopf 1-22-96
Supervisory Patent Examiner
Group 260